CLAIMS

1. (Previously Presented) A coating composition comprising one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount and

one or more binders.

2. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

3. (Previously Presented) The coating composition of claim 1 further comprising one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, ~~or~~ an acidic generating extender, and combinations thereof.

4. (Previously Presented) The coating composition of claim 1 further comprising one or more amino acids.

5. (Previously Presented) The coating composition of claim 1 further comprising one or more rare earthcompounds.

6. (Previously Presented) The coating composition of claim 1 further comprising one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more rare earth compounds.

7– 8. (Canceled)

9. (Previously Presented) The coating composition of claim 2 wherein the surface-modified corrosion-inhibiting carbon pigment is an inorganic dispersed carbon black.

10. (Previously Presented) The coating composition of claim 2 wherein the surface-modified corrosion-inhibiting carbon pigment is a resin-dispersed carbon black or a surfactant-dispersed carbon black.

11. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a conductive carbon pigment.

12. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is selected from the group consisting of acetylene black, channel black, furnace black, lamp black, thermal black, bone black and combinations thereof.

13. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is an elemental form of carbon.

14. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is an amorphous form of carbon.

15. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a carbon-containing mixture.

16. (Previously Presented) The coating composition of claim 1 wherein the one or more corrosion-inhibiting carbon pigments are present in the composition in a weight percent range of between about 0.1 to about 100% of total pigment concentration.

17. (Previously Presented) The coating composition of claim 1 wherein the coating composition has a pigment volume concentration of between about 5 to about 55.

18. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more binders is an organic binder.

19. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more binders is an epoxy-based resin binder.

20. (Previously Presented) The coating composition of claim 19 wherein the epoxy-based resin binder is an amine-cured epoxy-based resin binder.

21. (Previously Presented) The coating composition of claim 19 wherein the epoxy-based resin binder is a water reducible epoxy-polyamide system.

22. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more binders is a non epoxy-based resin binder.

23. (Previously Presented) The coating composition of claim 22 wherein the non epoxy-based resin binder is an organic resin binder selected from the group consisting of urethanes, ureas, acrylates, alkyds, melamines, polyesters, vinyls, vinyl esters, organo-silicones, organo-siloxanes, organo-silicates, organo-sulfides, organo-sulfones, drying oils, hydrocarbon polymers, and combinations thereof.

24. (Previously Presented) The coating composition of claim 3 wherein at least one of the one or more extenders is a sulfur, phosphorus or silicon oxyanion-containing compound.

25. (Previously Presented) The coating composition of claim 24 wherein the sulfur, phosphorus or silicon oxyanion-containing compound is selected from the group consisting of a metal cation sulfate, a metal cation sulfite, a metal cation sulfonate, a metal cation hydrogen phosphate, a metal cation phosphate, a metal cation phosphonite, an oxyphosphate, a clay mineral kaolin and combinations thereof.

26. (Previously Presented) The coating composition of claim 3 wherein at least one of the one or more extenders is calcium sulfate, calcium hydrogen sulfate, calcium phosphate, calcium hydrogen phosphate, calcium di-hydrogen phosphate or combinations thereof.

27. (Previously Presented) The coating composition of claim 3 wherein the one or more extenders are present in the composition in a weight percent of between about 45% to about 75% of total pigment concentration.

28. (Previously Presented) The coating composition of claim 1 further comprising one or more corrosion co-inhibitors.

29. (Canceled)

30. (Previously Presented) The coating composition of claim 2 further comprising:
one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and
combinations thereof.

31. (Original) The coating composition of claim 30 wherein the surface-modified corrosion-inhibiting carbon pigment is an inorganic dispersed carbon black.

32. (Original) The coating composition of claim 30 wherein the surface-modified corrosion-inhibiting carbon pigment is a resin-dispersed carbon black or a surfactant-dispersed carbon black.

33. (Previously Presented) Previously Presented) The coating composition of claim 30 wherein at least one of the one or more extenders is a sulfur, phosphorus or silicon oxyanion salt selected from the group consisting of a metal cation sulfate, a metal cation hydrogen sulfate, a metal cation sulfite, a metal cation hydrogen sulfite, a metal cation sulfonate, a metal cation hydrogen phosphate, a metal cation phosphate, a metal cation di-hydrogen phosphate, a metal cation phosphonite, an oxyphosphate, a clay mineral kaolin and combinations thereof.

34. (Previously Presented) The coating composition of claim 30 wherein the one or more neutral to slightly acidic generating extenders or one or more acidic generating extenders are present in the composition in a weight percent of between about 25% to 98% of total pigment concentration.

35. (Previously Presented) The coating composition of claim 30 wherein at least one of the one or more binders is an epoxy-based resin binder.

36. (Previously Presented) The coating composition of claim 30 further comprising one or more corrosion co-inhibitors.

37. (Previously Presented) The coating composition of claim 36 wherein at least one of the one or more corrosion co-inhibitors is a rare earth compound.

38. (Previously Presented) The coating composition of claim 3 further comprising:

one or more corrosion co-inhibitors, wherein at least one of the one or more corrosion co-inhibitors is a rare earth compound.

39. (Previously Presented) The coating composition of claim 38 wherein the rare earth compound is a salt of a rare earth-containing compound selected from the group consisting of a hydroxide of a rare earth-containing compound, an oxide of a rare earth-containing compound, a solid solution mixed oxide of a rare earth-containing compound, and combinations thereof.

40. (Previously Presented) The coating composition of claim 38 wherein the rare earth compound is selected from the group consisting of cerium oxide, cerium hydroxide, cerium solid solution mixed oxide, cerium oxide mixture, cerium salt, neodymium oxide, neodymium hydroxide, neodymium oxide mixture, neodymium salt, praseodymium oxide, praseodymium hydroxide, praseodymium solid solution mixed oxide, praseodymium oxide mixture, praseodymium salt, ytterbium oxide, ytterbium hydroxide, ytterbium solid solution mixed oxide, ytterbium oxide mixture, ytterbium salt, yttrium oxide, yttrium hydroxide, yttrium oxide mixture,

yttrium salt, terbium oxide, terbium hydroxide, terbium solid solution mixed oxide, terbium oxide mixture, terbium salt, and combinations thereof.

41. (Previously Presented) The coating composition of claim 38 wherein the rare earth compound is a praseodymium compound selected from the group consisting of a praseodymium solid solution mixed oxide, a praseodymium(III) oxide, a praseodymium(III) hydroxide, a praseodymium(IV) oxide, and combinations thereof.

42. (Previously Presented) The coating composition of claim 38 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

43. (Original) The coating composition of claim 42 wherein the surface-modified corrosion-inhibiting carbon pigment is an inorganic dispersed carbon black.

44. (Original) The coating composition of claim 42 wherein the surface-modified corrosion-inhibiting carbon pigment is a resin-dispersed carbon black or a surfactant-dispersed carbon black.

45. (Previously Presented) The coating composition of claim 38 wherein at least one of the one or more extenders is a sulfur, phosphorus or silicon oxyanion salt selected from the group consisting of a metal cation sulfate, a metal cation hydrogen sulfate, a metal cation sulfite, a metal cation hydrogen sulfite, a metal cation sulfonate, a metal cation hydrogen phosphate, a metal cation phosphate, a metal cation di-hydrogen phosphate, a metal cation phosphonite, an oxyphosphate, a clay mineral kaolin and combinations thereof.

46. (Previously Presented) The coating composition of claim 38 wherein the one or more extenders are present in the composition in a weight percent of between about 25% to about 98% of total pigment concentration.

47. (Previously Presented) The coating composition of claim 38 wherein at least one of the one or more binders is an epoxy-based resin binder.

48. (Previously Presented) The coating composition of claim 38 comprising at least two corrosion co-inhibitors.

49. (Previously Presented) The coating composition of claim 1 further comprising:

one or more corrosion co-inhibitors, wherein at least one of the one or more corrosion co-inhibitors is a rare earth compound.

50. (Previously Presented) The coating composition of claim 49 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

51. (Original) The coating composition of claim 50 wherein the surface-modified corrosion-inhibiting carbon pigment is surface-modified carbon black.

52. (Previously Presented) The coating composition of claim 49 wherein the rare earth compound is a praseodymium compound selected from the group consisting of a praseodymium solid solution mixed oxide, a praseodymium(III) oxide, a praseodymium(III) hydroxide, a praseodymium(IV) oxide, and combinations thereof.

53. (Previously Presented) The coating composition of claim 49 further comprising one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof.

54. (Previously Presented) The coating composition of claim 53 wherein at least one of the one or more extenders is a sulfur, phosphorus or silicon oxyanion salt selected from the group consisting of a metal cation sulfate, a metal cation hydrogen sulfate, a metal cation sulfite, a metal cation hydrogen sulfite, a metal cation sulfonate, a metal cation hydrogen phosphate, a

metal cation phosphate, a metal cation di-hydrogen phosphate, a metal cation phosphonite, an oxyphosphate, a clay mineral kaolin and combinations thereof.

55. (Previously Presented) The coating composition of claim 49 wherein at least one of the one or more binders is an epoxy-based resin binder.

56. (Previously Presented) The coating composition of claim 49 comprising at least two corrosion co-inhibitors.

57-58. (Canceled)

59 (Previously Presented) The coating composition of claim 30 wherein the surface-modified corrosion-inhibiting carbon pigment is a surface-modified carbon black.

60. (Previously Presented) The coating composition of claim 3wherein at least one of the one or more binders is an epoxy-based resin binder.

61. (Previously Presented) The coating composition of claim 3 further comprising one or more corrosion co-inhibitors.

62. (Canceled)

63. (Previously Presented) A coating system comprising:

a coating composition according to claim 1 applied to a substrate.

64. (Previously Presented) The coating system of claim 63 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting pigment.

65. (Previously Presented) The coating system of claim 63 wherein the system further comprises one or more pretreatment coatings applied to the substrate to form a pretreated substrate and a topcoat.

66. (Original) The coating system of claim 65 wherein the topcoat is a urethane topcoat.

67. (Previously Presented) The coating system of claim 63 wherein at least one of the one or more binders is a resin binder.

68. (Previously Presented) The coating system of claim 63 wherein the coating composition is cured naturally or with an accelerated method of curing which exposes the coating composition to heat, UV energy, microwave energy, or combinations thereof.

69. (Previously Presented) The coating system of claim 63 wherein the substrate is coated by a method of application selected from the group consisting of spraying, brushing, rolling and dipping.

70. (Original) The coating system of claim 63 wherein the substrate is a composite substrate.

71. (Original) The coating system of claim 63 wherein the substrate is selected from the group consisting of aluminum, aluminum alloys, steel, galvanized steel, zinc, zinc alloys, magnesium, and magnesium alloys.

72. (Previously Presented) A coating system comprising:

one or more pretreatment coatings applied to a substrate to form a pretreated substrate; and

a coating composition according to claim 1, the coating composition further comprising a one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof, the coating composition applied to the pretreated substrate.

73. (Previously Presented) The coating system of claim 72 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

74. (Previously Presented) The coating system of claim 72 wherein the system further comprises a topcoat.

75. (Original) The coating system of claim 74 wherein the topcoat is a urethane topcoat.

76. (Previously Presented) The coating system of claim 72 wherein at least one of the one or more binders is a resin binder.

77. (Previously Presented) The coating system of claim 72 wherein the coating composition is cured naturally or with an accelerated method of curing which exposes the coating composition to heat, UV energy, microwave energy, or combinations thereof.

78. (Previously Presented) The coating system of claim 72 wherein the pretreated substrate is coated by a method of application selected from the group consisting of spraying, brushing, rolling and dipping.

79. (Original) The coating system of claim 72 wherein the pretreated substrate is a composite substrate.

80. (Original) The coating system of claim 72 wherein the substrate is selected from the group consisting of aluminum, aluminum alloys, steel, galvanized steel, zinc, zinc alloys, magnesium, and magnesium alloys.

81. (Previously Presented) A coating system comprising:

one or more pretreatment coatings applied to a substrate to form a pretreated substrate; and a coating composition according to claim 1, the coating composition further comprising one or more rare earth compounds, the coating composition applied to the pretreated substrate.

82. (Previously Presented) The coating system of claim 81 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified carbon pigment.

83. (Previously Presented) The coating system of claim 81 wherein the system further comprises a topcoat.

84. (Previously Presented) The coating system of claim 81 wherein at least one of the one or more binders is a resin-binder.

85. (Previously Presented) The coating system of claim 81 wherein the coating composition and the one or more pretreatment coatings are each independently cured naturally or by exposure to heat, UV energy, microwave energy, or combinations thereof.

86. (Previously Presented) The coating system of claim 81 wherein the pretreated substrate is coated by a method of application selected from the group consisting of spraying, brushing, rolling and dipping.

87. (Previously Presented) A coating system comprising:

one or more pretreatment coatings applied to a substrate to form a pretreated substrate; and

a coating composition according to claim 1 the composition further comprising one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof, and one or more rare earth compounds, the coating composition applied to the pretreated substrate.

88. (Previously Presented) The coating system of claim 87 wherein at least one of the corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

89. (Previously Presented) The coating system of claim 87 wherein the system further comprises a topcoat.

90. (Previously Presented) The coating system of claim 87 wherein the coating composition and the one or more pretreatment coatings are each independently cured naturally or by exposure to heat, UV energy, microwave energy, or combinations thereof.

91. (Previously Presented) The coating system of claim 87 wherein the pretreated substrate is coated by a method of application selected from the group consisting of spraying, brushing, rolling and dipping.

92. (Previously Presented) A method of preparing a coating composition according to claim 1, the method comprising:

preparing a mill base having one or more binders; and

adding an effective corrosion-inhibiting amount of a one or more corrosion-inhibiting carbon pigments to the mill base to produce the coating composition.

93 (Previously Presented) The method of claim 92 wherein the one or more corrosion-inhibiting carbon pigments are pre-dispersed into the binder with a dispersant.

94. (Previously Presented) The method of claim 92 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

95. (Previously Presented) The method of claim 92 wherein the method further comprises adding to the mill base one or more materials selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, one or more rare earth compounds, one or more additives, and combinations thereof.

96. (Previously Presented) A method comprising:

providing a substrate to be coated; and

coating the substrate with a coating composition according to claim 1.

97. (Previously Presented) The method of claim 96 wherein the one or more corrosion-inhibiting carbon pigments are pre-dispersed into the binder with a dispersant.

98. (Previously Presented) The method of claim 96 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a surface-modified corrosion-inhibiting carbon pigment.

99. (Previously Presented) The method of claim 96 wherein the coating composition further contains a material selected from the group consisting of one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof, one or more rare earth compounds, one or more additives and combinations thereof.

100. (Original) The method of claim 96 wherein the substrate is a pretreated substrate.

101. (Original) The method of claim 100 wherein the pretreated substrate is coated by a method selected from the group consisting of spraying, brushing, rolling and dipping.

102. (Previously Presented) The method of claim 96 wherein the substrate is a composite substrate.

103. (Previously Presented) The method of claim 100 wherein the method further comprises applying a topcoat.

104. (Original) The method of claim 103 wherein the topcoat is a urethane topcoat.

105-111. (Canceled)

112. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is crystalline carbon.

113. (Previously Presented) The coating composition of claim 1 wherein the corrosion-inhibiting carbon pigments are present in the composition in a weight percent range of between about 3% to about 25% of total pigment concentration.

114. (Canceled)

115. (Previously Presented) The coating composition of claim 24 wherein at least one of the one or more extenders is a sulfate.

116. (Original) The coating composition of claim 115 wherein the sulfate is a metal sulfate.

117. (Previously Presented) The coating composition of claim 116 wherein the metal sulfate is selected from the group consisting of calcium sulfate, calcium hydrogen sulfate, strontium sulfate, barium sulfate and combinations thereof.

118. (Previously Presented) The coating composition of claim 24 wherein at least one of the one or more extenders is a phosphate.

119. (Previously Presented) The coating composition of claim 5 wherein the one or more rare earth compounds is a praseodymium(III) sulfate or a praseodymium(III/IV) oxide.

120. (Previously Presented) The coating composition of claim 57 wherein the one or more extenders do not substantially solubilize in the coating composition..

121-122. (Canceled)

123. (Previously Presented) The coating system of claim 87 wherein at least one of the one or more binders is a resin binder.

124. (Previously Presented) The coating composition of claim 1 further comprising:

one or more extenders selected from the group consisting of a neutral to slightly acidic generating extender, a slightly acidic generating extender, and combinations thereof, present in the composition in a weight percent from between about 25% to about 98% of total pigment concentration; and

one or more rare earth compounds, present in the composition in a weight percent from between about 0.4% to about 26% of total pigment concentration, and wherein

the corrosion-inhibiting carbon pigment is present in the composition in a weight percent from between about 3% to about 25% of total pigment concentration.

125. (Previously Presented) The coating composition of claim 1 wherein the corrosion-inhibiting carbon pigment is present in the composition in a weight percent of at least about 6% of total pigment concentration.

126. (Previously Presented) The coating composition of claim 1 wherein the effective corrosion-inhibiting amount of the one or more corrosion-inhibiting carbon pigments is an amount which provides the coating composition with at least a 2, 4 A rating on the Keller Corrosion Rating Scale for a 500 hour salt fog test, as tested according to ASTM B117 procedure.

127. (Previously Presented) The coating composition of claim 1 wherein the effective corrosion-inhibiting amount of the corrosion-inhibiting carbon pigment is at least about 6 wt%, and the coating composition has at least a 2, 4 A rating on the Keller Corrosion Rating Scale for a 500 hour salt fog test, as tested according to ASTM B117 procedure.

128. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more corrosion-inhibiting carbon pigments is a non-conductive carbon pigment.

129. (Previously Presented) The coating composition of claim 1 wherein at least one of the one or more binders is an inorganic binder.

130. (Previously Presented) The coating composition of claim 129 wherein the inorganic binder is an inorganic polymer selected from the group consisting of silicone polymers, siloxane polymers, silicate polymers, and combinations thereof.

131. (Previously Presented) The coating composition of claim 3 wherein the one or more extenders are present in the composition in a weight percent of between about 25% to about 98% of total pigment concentration..

132. (Previously Presented) The coating composition of claim 131 wherein the one or more extenders are present in the composition in a weight percent of between about 80% to about 95% of total pigment concentration.

133. (Previously Presented) The composition of claim 26 wherein the calcium sulfate is hydrous calcium sulfate, anhydrous calcium sulfate or combinations thereof.

134. (Previously Presented) The coating composition of claim 67 wherein the resin binder is an epoxy-based resin binder.

135. (Previously Presented) The coating composition of claim 76 wherein the resin binder is an epoxy-based resin binder.

136. (Previously Presented) The coating composition of claim 84 wherein the resin binder is an epoxy-based resin binder.

137. (Previously Presented) The coating composition of claim 123 wherein the resin binder is an epoxy-based resin binder.

138. (Previously Presented) The coating composition of claim 87 further comprising one or more additives.

139. (Previously Presented) A method of preparing a coating composition according to claim 1, the method comprising:

preparing a dispersion of one or more binders;

incorporating one or more corrosion-inhibiting carbon pigments into the one or more binders to form a base composition; and

incorporating an activator into the base composition.

140. (Previously Presented) The method of claim 139 further comprising incorporating one or more materials selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, one or more rare earth compounds, and combinations thereof, into the binder to form the base composition.

141. (Previously Presented) The coating system of claim 63 wherein the system is a water-borne system, a solvent-borne system, a powder system or an appliqué system.

142. (Previously Presented) The coating system of claim 72 wherein the system is a water-borne system, a solvent-borne system, a powder system or an appliqué system.

143. (Previously Presented) The coating system of claim 81 wherein the system comprises a water-borne system, a solvent-borne system, a powder system or an appliqué system, wherein the coating system can be different for the coating composition and the one or more pretreatment coatings.

144. (Previously Presented) The coating system of claim 87 wherein the system comprises a water-borne system, a solvent-borne system, a powder system or an appliqué system, wherein the coating system can be different for the coating composition and the one or more pretreatment

coatings.

145. (Previously Presented) The coating system of claim 71 wherein the substrate is aluminum, an aluminum alloy, magnesium or a magnesium alloy.

146. (Previously Presented) The coating system of claim 80 wherein the substrate is aluminum, an aluminum alloy, magnesium or a magnesium alloy.

147. (Previously Presented) The coating system of claim 63 wherein the coating composition is applied to the substrate by an electrolytic coating method.

148. (Previously Presented) The coating system of claim 72 wherein the coating composition is applied to the substrate by an electrolytic coating method.

149. (Previously Presented) The coating system of claim 81 wherein the coating composition, the one or more pretreatment coatings, or both are applied to the substrate by an electrolytic coating method.

150. (Previously Presented) The coating system of claim 87 wherein the coating composition, the one or more pretreatment coatings ,or both are applied to the substrate by an electrolytic coating method.